

# ***Nutrition and Physical Activity Guidelines for Adolescents***

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# Adolescent Nutrition

## Introduction

Adolescence is the only time following infancy when the rate of growth actually increases. This sudden growth spurt is associated with hormonal, cognitive, and emotional changes that make adolescence an especially vulnerable period of life nutritionally. First, there is a greater demand for calories and nutrients due to the dramatic increase in physical growth and development over a relatively short period of time. Second, adolescence is a time of changing lifestyles and food habit - changes which affect both nutrient needs and intake.

Adolescence can be divided into three stages. Early adolescence (11-14 years of age) is characterized by the onset of puberty and increased cognitive development. Middle adolescence (15-17 years

of age) increased autonomy and experimentation. Late adolescence (18-21 years of age) is a time for making important personal and occupational decisions.

Poor nutrition during any of these stages can have lasting consequences on an adolescent's cognitive development, resulting in decreased learning ability, poor concentration, and impaired school performance.

### Common Nutrition Concerns

Adolescents of both sexes and in all income and racial/ethnic groups can be at risk for dietary excesses and deficiencies. Dietary excesses of total fat, saturated fat, cholesterol, sodium, and sugar commonly occur. Most adolescents do not meet dietary recommendations for fruits, vegetables, and calcium rich foods.

Other nutrition-related concerns for adolescents include high soft drink consumption, unsafe weight-loss methods, iron-deficiency anemia, and eating disorders. As a result, primarily of decreasing levels of physical activity over the past decade, obesity has also become more prevalent among both male and female adolescents. Nutrition problems may also occur as a result of tobacco and alcohol abuse, pregnancy, disabilities, or chronic health conditions.



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Section 1

## Inside this Section

- 1 Introduction
- 2 Factors Contributing to Poor eating Habits and Physical Inactivity  
Nutrition Requirements for Adolescents
- 3 The Food Guide Pyramid
- 4 Food Perceptions
- 5 Adolescent Eating Behaviors
- 6 What Can AFLP/ASPPP Case Managers Do?

Consequences of Poor Eating Habits

Poor or inappropriate dietary habits increase the risk and/or incidence of chronic disease among adolescents. Of greatest concern is the increasing rate of obesity and obesity-related health risks, such as diabetes and cardiovascular disease. A recent increase in the prevalence of non-insulin dependent diabetes among adolescents is thought to be directly related to the increasing rates of obesity in this age group.

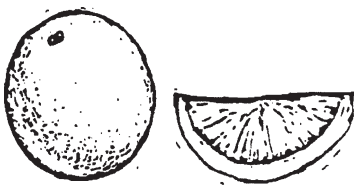
Inadequate iron intake increases the incidence of iron-deficiency anemia, especially among those adolescents at highest risk —

pregnant teens, vegetarians, and competitive athletes. Vegetarianism is gaining popularity among adolescents; without appropriate supplementation, these adolescents may be at risk for nutrient deficiencies (see Section 10: *Vegetarian Teens* guideline).

A typical adolescent diet does not include adequate amounts of fruit vegetables, and whole grains. These foods are significant source of vitamins and minerals such as folate. Folate deficiency is of special concern for girls who may become pregnant. (See Section 5 Folate (*Folic, Acid*) guideline and Section 6: *Fruits and Vegetables* guideline.)

Consumption of soft drinks among adolescents has risen dramatically and continues to replace milk, fruit juice, and water as the beverage of choice. Health concerns associated with this increased soft drink intake include excess caloric intake (contributing to overweight/obesity), dental caries, and possible interference with calcium absorption due to high content of phosphorus in soda.

The most disturbing result of this dietary habit is the decrease in milk - and thus calcium consumption. Adequate calcium intake during adolescence is essential for peak bone mass, yet evidence suggests that most adolescents do not meet the recommended daily intake. Sugar sweetened, fruit-flavored drinks such as Kool-Aid, Hi-C and Sunny Delight - also contribute to milk displacement. (For more information, refer to Section 3: *Calcium* guideline.).



Nutrition Requirements for Adolescents

**Energy**  
Three nutrients — carbohydrate, protein and fat — provide energy in the form of calories. Carbohydrates and protein each contain 4 calories per gram, fat contains 9 calories per gram.

***Factors that contribute to poor eating habits:***

- Easily available low-cost, high-fat, low-nutrient foods
- Limited access to healthy foods that appeal to teens when away from home
- Perception that low-fat, unprocessed, nutrient dense foods (*foods that are high in nutrients compared with their calorie content*) are inconvenient and lack taste
- Lack of knowledge regarding appropriate nutrition and the impact of poor nutrition
- Poor parental role modeling
- Elimination of food handling, shopping, and preparation classes in school (e.g., home economics) and the subsequent lack of relevant skills
- Increased incidence of disordered eating among females due to fear of getting fat and the impact of advertising on body image

***Factors that contribute to physical inactivity:***

- Decline in high school physical education participation
- Decline in physical activity due to more sedentary lifestyle
- Limited or no access to safe, outdoor physical activity

Nonpregnant and nonlactating female adolescents require between 2,000 and 2,200 calories each day, adolescent males about 2,500 to 3,000. Of that total, 60% is needed for the body's basic energy needs, or "basal metabolism." These basic needs include tissue growth and repair, and basic autonomic functions such as those performed by the heart and lungs.

An additional 30% of each day's energy requirement is needed to meet the demands of physical activities. The energy costs of digesting and absorbing food accounts for the remaining 10%.

Energy needs vary with physical activity. An additional 600 to 1,000 calories per day are needed if the adolescent is involved in vigorous physical activity.

#### Protein

Protein needs depend on the individual's rate of growth. Most teens meet or exceed recommended levels. Adolescents at risk for protein deficiency include strict vegetarians and those using extreme measures to restrict their food intake to lose weight.

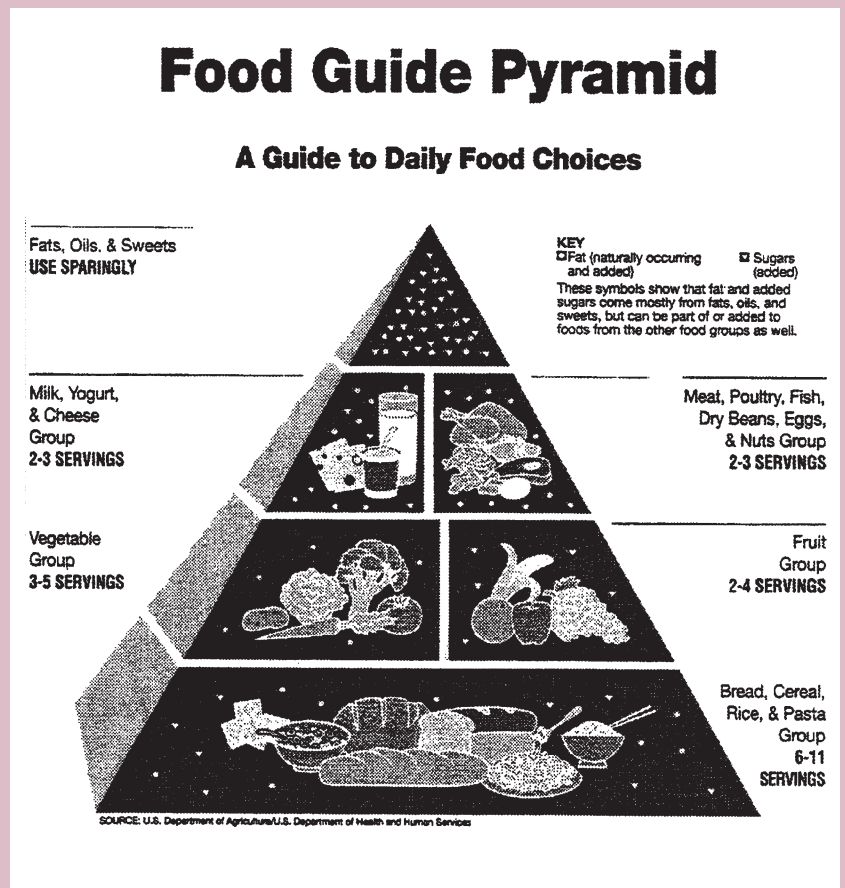
#### Fat

Fat is a necessary nutrient and most teens exceed recommended levels for fat intake. Some adolescents, especially girls, are at risk for deficiency due to their efforts to lose or avoid gaining weight by severely reducing their fat intake. Recommendations for fat intake for adolescents are the same as those for adults: Fat from all sources should represent 30% or less of the day's calories - or about 65 to 100 grams for a 2,000 to 3,000-calorie diet.

### *The Food Guide Pyramid*

The Food Pyramid illustrates the types and quantities of foods to be eaten each day by individuals aged 2 years and older. It is a general guide based on advice from leading nutrition experts and designed to assure adequate intake of energy, protein, vitamins, minerals, and fiber. The Food Guide Pyramid highlights foods from five major food groups. Each of these food groups provides some - but not all - of the nutrients that an individual needs. Foods in one group cannot replace foods from another group.

The Food Guide Pyramid handout in Appendix One details the number of recommended servings from each food group. This guide, published by the Department of Agriculture in 1992, does not include the recently revised recommendation for adolescent calcium intake. See Section 3: Calcium guideline for the most current recommendations.



Food Perceptions

Adolescents’ perceptions of nutrient dense foods strongly affects their food choices. In a recent study (Chapman, G., 1993), 11- to - 18 years old adolescent girls were asked to describe the different situations and feelings they associated with “junk food” (which they defined as “chocolate, candy, chips, and soda”) and “healthy food” (which they defined as “fruits, vegetables, chicken, fish, bread and low-fat milk”).

Junk Food	Versus	Healthy Food
Normal		Weird
Snacks		Meals
Gaining weight/going off diet		Losing weight/dieting
Enjoyment, pleasure, parties		Concerned with weight appearance
Being with friends		Being with parents
Being away from parents/home		Staying home
Not being in control		Self-control
Being at the mall or store		
Having money		
Doing whatever you want		
Overeating, pigging out, Guilt, Disgust		

This 30% recommendation is further divided into equal portions for the three major forms of dietary fat: saturated fat - found primarily in animal products and

some processed foods; monounsaturated fat — found in olive and canola oils; and polyunsaturated fats — in safflower, soybean, and corn oils, among others. For a 2,000- to 3,000-calorie diet, this would come to 21 to 33 grams from each fat source.

Vitamins and Minerals

Vitamins are complex chemical substances that — together with minerals — have a role in most or all processes that take place in the body. The demands of growth and

development - coupled with the typical poor eating habits of this age group - places adolescents at risk for deficiency of several vitamins and minerals. See the individual sections for *Calcium, Iron, Folate, Fruits and Vegetables, and Vegetarian Teens*.

Fiber

The average fiber intake for adolescents is approximately 12 grams per day.

The suggested recommended daily intake of fiber for adolescents is calculated by the following formula: (Adolescent’s age in years) + 5 to 10 grams per day = recommended daily fiber intake.

For example, the recommended daily fiber intake for a 15-year-old would be:

15 years + (5 to 10) =  
20 to 25 grams per day

Water

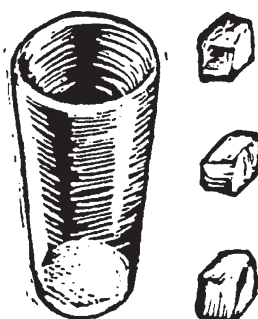
Water is involved in almost every life-sustaining body process. It carries nutrients and oxygen to body cells, takes waste products away, and regulates body temperature. It provides no energy and thus has no calories.

Good hydration is important to keep the body functioning normally. By the time someone experiences thirst — the first conscious sign of dehydration — some percentage of fluid has already been lost. It is important to continue to drink water and other fluids throughout the day to prevent dehydration,

The body loses water through urination, perspiration, respiration, and feces. Drinking water and other beverages is the best way to replace body water. Solid foods, especially many fruits and vegetables, also provide water, however this amount is difficult to measure.

An adolescent approaching adult size should drink six to eight 8-ounce glasses of fluid per day, with more during exercise and in hot weather. Caffeinated beverages such as coffee, tea, and many sodas are not the best sources of water as caffeine acts as a diuretic causing the body to lose water through increased urination.





When teens are physically active for less than three hours in mild weather conditions, only water is needed for rehydration. If physical activity lasts longer than three hours and the weather is hot and humid, however, athletes may need to replace sodium, potassium, and chloride — electrolytes that help regulate the body balance fluids. When teens participate in prolonged physical activity, they should drink cool diluted juices; commercial sports drinks are not necessary. Salt pills should not be used, as they can be dangerous.

## Adolescent Eating Behaviors

Adolescents spend a good deal of time away from home and many consume fast foods, which are convenient, but are often high in calories and fat. It is common for adolescents to skip meals and snack frequently. The social pressure to be thin and the stigma of obesity can lead to unhealthy eating practices and poor body image, particularly among young female adolescents. Males in contrast, may be susceptible to the use of high-protein drinks or

supplements as they try to build additional muscle mass.

In 1998, the State Department of Health Services conducted a dietary practices survey of 12- to 17-year-olds in California [the California Teen Eating, Exercise and Nutrition Survey (CalTEENS)]. (Although the final survey report is still unpublished, results were presented at the American Public Health Association Annual Meeting on November 16, 1998.)

Of the more than 1,200 adolescents surveyed, only 2% had met all of the recommendations of the 1990 California Daily Food Guide (similar to the Food Guide Pyramid in Appendix One). In contrast, 68% had eaten 2 or more servings of high-fat, low-nutrient foods. Approximately one-third ate at least one meal or snack from a fast food restaurant. On a positive note, adolescents who had been taught to cook in healthy ways reported more healthy eating practices.

### Cultural Factors

One's cultural background strongly influences one's food choices and preferences. People from different cultures may also view body weight differently. For example, some cultures may see excess weight as sign of wealth and health.

Cultural influences are not limited to one's ethnic background. They can include religion, social and economic status, and where one was raised or currently lives (urban, rural, or suburban life-

style). Adolescents also have their own particular "teen" culture that can strongly influence their food choices, especially away from home (see *Adolescent Eating Behaviors*, earlier in this section).

For more information see *Food Practices of Nine Cultural Groups in California and Celebrating Diversity: Approaching Families Through Food*, two reference books provided to Adolescent Family Life Program case management staff by the state Maternal and Child Health Branch.

### Nutrition Supplements

Dietary supplements may supply some vitamins and minerals, but they cannot provide all the nutritional components that food offers for good health. No supplement can fix an ongoing pattern of poor food choices.

Some adolescents may be intrigued by over-the-counter nutrition supplements such as vitamins, minerals, herbs (e.g., ephedra for weight loss) and protein powders. The Food and Drug Administration (FDA) does not regulate the purity or dosages of most of these products, their claims are seldom proven, and overuse in some cases may be dangerous.

Expensive nutrition products — such as energy or power bars and shakes — are popular, but haven't been shown to enhance performance. Another supplement popular among athletes — creatine — has not been evaluated for its effects on the growth, development, or health of adolescents.

# What Can AFLP/ASPPP Case Managers Do?

## Suggested Interventions

Interventions planned to address adolescent nutrition and physical activity topics should include concrete, practical experiences that address immediate concerns.

Although having accurate nutrition knowledge is important, especially for adolescents, it is very important to remember that knowledge alone is not enough to change dietary behavior.

Adolescents are more attentive to information if it is presented in an interactive way; they prefer not to simply listen to a speaker or read a pamphlet or booklet. Education activities should be quick and fun, and should demonstrate that healthy foods are affordable, easy to prepare and can be flavorful.

## Eating Practices

- Encourage family meals whenever possible.
- Encourage the selection of healthy foods when eating out.
- It is Unrealistic to expect adolescents to not frequent fast food restaurants. Encourage less frequency and better menu selections at fast food restaurants.

### Hands-on activities are very effective. Such activities might include:

- cooking demonstrations and food sampling
- meal planning, including snacks and party foods
- grocery store tours
- planning a menu and shopping for ingredients within a limited dollar amount
- tips on how to eat healthfully in restaurants
- learning basic food preparation techniques using a cookbook

## Goal Setting

Goals must be descriptive, concrete, and what the client is willing to do. They should be realistic, reasonable, and achievable. Avoid goals that are too ambitious or long term; make them small with short-term results.

## Nutrition Screening

Case managers can screen their clients for nutrition risk (see Section 2: *Nutrition Risk Screening Questionnaire*). They can provide education, offer nonjudgmental feedback on current habits, and recommend reasonable lifestyle changes. Concrete approaches are best. “Try a bagel for breakfast” is clearer than “eat more grains,” or “gradually switch from whole or low-fat milk to 1% or nonfat milk” is more concrete than “eat less fat.” Case managers can also assist clients to set goals and develop an action plan.

## Referrals

Each guideline includes, when appropriate recommendations for when and to whom referrals should be made.

